

What is claimed is:

1. A switch relay device for connecting at least one new device to a network including at least one host, the
5 switch relay device comprising:
 - a first physical layer circuit connected to the network;
 - a second physical layer circuit connected to each new device; and

10 a link layer circuit, which is connected between the first physical layer circuit and the second physical layer circuit, to separate the first physical layer circuit and the second physical layer circuit from each other, wherein the link layer circuit does not reconfigure the network when
15 the at least one of a new device is connected or disconnected or when at least one of the new devices is switched.

2. The switch relaying device according to claim 1,
20 further comprising a switch for switching the at least one of the new devices, wherein the link layer circuit transfers data between the first physical layer circuit and one of the second physical layer circuits that is connected the new device based on the switching operation of the switch.
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3. The switch relaying device according to claim 2,
further comprising a memory device for reading device information from the new device and storing the device information.
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4. The switch relay device according to claim 3,
further comprising an application layer circuit for sending one of the device information selected by the switch to the

host based on the device information, which is prestored, and for controlling data transfer between the first physical layer circuit and the second physical layer circuit.

5 5. The switch relay device according to claim 4, wherein the application layer circuit includes a generation unit for generating general purpose device information based on the device information.

10 6. The switch relay device according to claim 4, wherein the application layer circuit includes a transferring and saving unit for determining whether there is available memory space in a first new device selected by the switch to store data received from the host and for 15 transferring the data stored in the first new device to a second new device while saving the data from the host in a third new device when there is no available memory space in the first new device.

20 7. The switch relay device according to claim 4, wherein the application layer circuit includes a sending unit for sending one of the device information selected by the host to the host based on the prestored device information.

25 8. The switch relay device according to claim 4, wherein the application layer circuit includes a delaying unit for determining whether data is being transferred in the network when one of the new devices is switched by the 30 switch and for delaying the occurrence of a bus reset when the data is being transferred until the data transfer process ends.

9. A switch relay system for connecting at least one new device to a network including at least one host, the switch relay system comprising:

a switch for switching at least one of the new devices;

5 and

a control unit for detecting whether at least one new device is connected or whether at least one of the new devices is switched by the switch, and for not reconfiguring the network when connection or switching is detected.

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10. The switch relay system according to claim 9, wherein when the connection or switching of the new device is detected, the control unit causes a bus reset to occur only in the new device in which the connection or switching 15 is detected.

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11. The switch relay system according to claim 9, wherein the control unit reads device information of the new device, detects whether one of the new devices is selected 20 by the switch, sends the device information of the selected new device to the host of the network when one of the new devices is selected, and sends the device information of all of the new devices when none of the new devices is selected.

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12. A switch relay device for connecting a plurality of devices to a network including a host, the switch relay device comprising:

a plurality of device physical layer circuits, each device physical layer circuit being for connection to a device;

30 a network physical layer circuit for connection to the network;

a link layer circuit connected between the network physical layer circuit and the device physical layer

circuits; and

a switch which selectively connects and disconnects the device physical layer circuits to a plurality of devices, wherein the network physical layer circuit functions as a single node with respect to the network, even though the plurality of devices are connected or disconnected to the device physical layer circuits.

13. The switch relay device according to claim 12,
10 wherein the link layer circuit transfers data between the network physical layer circuit, and one of the device physical layer circuits to which a device is connected in accordance with the selection of the switch.

15 14. The switch relay device according to claim 12,
further comprising a memory device having a memory for reading device information from a new device when connected to a device physical layer circuit and storing the device information.

20 15. The switch relay device according to claim 14,
further comprising an application layer circuit which sends device information for a device from the memory through the network physical layer circuit to the host in accordance with the device connected by the switch to a device physical layer circuit.

30 16. The switch relay device according to claim 15,
wherein the application layer circuit selectively provides data, which is transferred from the host, to the devices through the device physical layer circuits in accordance with requests from the host.

17. The switch relay device according to claim 12,
wherein even when the switch selectively connects and
disconnects the device physical layer circuits to the
plurality of devices, data is transferred between a device
5 connected through that device physical layer circuit and the
network until the data transfer has completed.

18. The switch relay device according to claim 17,
wherein the link layer circuit transfers data between the
10 network physical layer circuit, and one of the device
physical layer circuits to which a device is connected in
accordance with the selection of the switch.